LAND TITLE MAPPER PROGRESS REPORT

But, Where's Waldo?

LTM development effort this past quarter focused on the GDSC Parcelizer. The Parcelizer is a suite of programs and AMLs that will create ARC/INFO LTM Surface and Mineral coverages from LRIS records. The goals are to provide digital parcel data for reservations more efficiently than through conventional methods (e.g. manual digitizing) as well as a methodology for long-term automated maintenance of parcel data.

Ya Gotta Start Somewhere

The process initially requires Public Land Survey section boundaries and government lots as digital coordinate data. The PLS data can come from various sources, including USGS 100K DLGs, Geographic Coordinate Data Base (GCDB) data from the BLM, or digitizing 1:24000 USGS quad sheets at the Geographic Data Service Center.

Introducing GILDA

Digital government lots can come from the same sources as the PLS section lines, and in addition they can be generated by GILDA (Government lot buILD Application). GILDA, a program developed at the GDSC to create mathematically precise standard government lots along the northern tier and western range of sections within a township, prevents sliver polygons when AMOEBA's (see below) parcels are complete.

INSIDE THIS REPORT

LTM Planning

On April 9, 1998 the GDSC hosted an LTM Planning and Service Level Agreement (SLA) meeting in Lakewood, Colorado. Four area offices and the central office were represented by: Debbie Koebrick of LTRO-Anadarko, Donna Peigler of LTRO-Albuquerque, Jim Geffre of LTRO-Aberdeen, Mike Jones of the Central Realty Office, and Dennis Wilson and Vianna Stewart of LTRO-Billings.

Following a welcome and introduction by Bill Bonner, GDSC Director, and a tour of the facilities, a report on the current status of LTM software and database development was presented.

A River Runs Through It

The availability and cost of adding map reference data, such as location names, transportation, hydrography, and political boundaries to the LTM database package was discussed at length. Map output examples of the potential for this effort were shown using existing LTM reservations.

Rocky Boy's Reservation Complete

Following lunch, an extensive report and demonstration of the GDSC Parcel Generator was shown using 10 maps of Rocky Boy's depicting the steps involved with VOODOO, GILDA, AMOEBA and GODZILLA. The process

You Do That VOODOO

As a second step, VOODOO ("this is all voodoo GIS") forms aliquot parts from the PLS data for all potential 0.625 acre partitions in the reservation. An ARC point coverage representing the partitions is archived for the reservation and used to prevent coordinate creep when the parcel coverage is maintained and updated in the future.

GODZILLA Cometh

Next, current LRIS data are retrieved from the Albuquerque Operations Service Center (OSC) and imported into a Microsoft Access Database. Once in Access, the LRIS data is reformatted for submission to the GODZILLA (picture Godzilla stepping on whatever he wants to step on) program. GODZILLA detects many types of anomalies, such as a parcel record claiming the same land (stepping on the same land) as another record, and missing legal descriptions. A GODZILLA report is sent to the appropriate LTRO for review and resolution of the LRIS data.

Subdivide and Conquer

Finally, when the LRIS anomalies are resolved, the program AMOEBA (subdividing sections into parcels) uses digitized PLS sections, government lots and refined LRIS records to form parcel coverages.

We Love LUCY

What truly differentiates this parcel generating process from previous programs is the ability to synchronize the maintenance of parcel coverages with the current LRIS records. As LRIS records are added, deleted or modified, a program currently under development at the GDSC named LUCY (LTM Update to CurrencY) will recognize those LRIS records that have been modified and make the minimum corresponding changes to the LTM coverages. LUCY will be available in the field by the end of the calendar year. This adroit and comprehensive little program will allow LTRO personnel to update LTM land status maps locally via procedures developed at GDSC.

represents a timesaving of over 1200% when compared to manual digitizing. The GDSC expects to actually complete more reservations than originally committed to, through the use of this innovative software application.
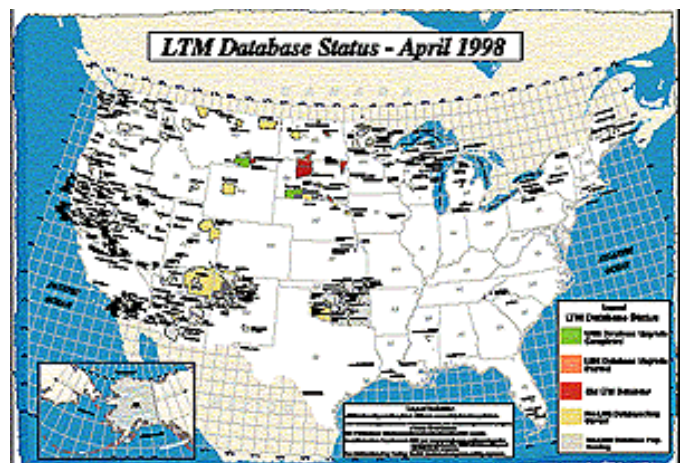
GODZILLA Reports

LTRO Godzilla reports were discussed in detail. These reports represent probable LRIS errors that the software recognized during an attempt to Parcelize this reservation from the LRIS land status information. ♦

LTM Database Status

The GDSC is pleased to announce the completion of three GIS LTM land status databases designed for use by the LTM mapping application software. Database completion is defined by successfully generating GIS land status tracts via the parcel generator software directly from current LRIS land records, and generating the remainder of the tracts via traditional GIS database construction methods. Completed databases as of January 1998, include:

- **Pine Ridge Reservation, Aberdeen LTRO**
- **Crow Reservation, Billings LTRO**
- **Rocky Boy's Reservation, Billings LTRO**

LTM Database Status Map

A copy of this map depicting current LTM database status resides on the GDSC WebPages. This map will be updated on a regular basis and will graphically display LTM database progress. To view the map image, go to the GDSC WebPages at http://gdsc.bia.gov, click on Computer Services, click on Land Title Mapper, then click on Status Map. The Adobe Acrobat reader is required to view our

Beta will be Better

The Beta version of the Parcelizer is currently in use at the GDSC. Further development will continue through 1998. Enhancements will enable the process to handle increasingly complex PLS topology and LRIS descriptions. Version 1.0 of the Parcelizer is expected in late 1998.

Not This Time

Normally, LTM software releases are scheduled each quarter with the LTM Newsletter. Due to extensive Parcelizer development, there will be no LTM software release this quarter. However, a release of LTM software is expected with the Newsletter during the third quarter of calendar 1998. This software upgrade will include the ability to read the new database(s) introduced with the Parcelizer. ♦

GDSC's Home Page

The GDSC Home Page http://gdsc.bia.gov contains all kinds of interesting goodies and links. We urge you to check it out often. The current training schedule and class availability is only one of the informative sections. LTM database status maps are available for viewing and printing. LTM sample township maps are also available. This LTM Progress Report is accessible via our home page as well as

an AML reference page, upcoming events of interest to our clients in Indian Country, FY 98 training registration form, "online" version of the Quarterly Service Center Review, and local lodging and transportation information for those planning a visit to GDSC.

maps and is available from the GDSC homepage for download, through a link to Adobe's WebPages.

Work in Progress

Two LTM databases are currently in the process of being upgraded to completed status. These GIS databases will have had the Parcelizer applied, and are presently being edited and verified by GDSC database staff. LTM databases that are currently in this 'LRIS Database Upgrade Started' category include:

- **Lower Brule Reservation, Aberdeen LTRO**
- **Turtle Mountain Reservation, Aberdeen LTRO**

Oldies but Goodies

Seven existing LTM databases deployed at the Aberdeen and Billings LTRO sites are currently in the GDSC LTM database development queue awaiting LRIS upgrade action.

- **Cheyenne River Reservation, Aberdeen LTRO**
- **Sisseton Reservation, Aberdeen LTRO**
- **Spirit Lake Reservation, Aberdeen LTRO**
- **Standing Rock Reservation, Aberdeen LTRO**
- **Yankton Reservation, Aberdeen LTRO**
- **Fort Peck Reservation, Billings LTRO**
- **Northern Cheyenne Reservation, Billings LTRO**

These existing 'Old LTM Databases' require Godzilla reports to be generated and will typically require only minimal effort to bring them to 'LRIS Database Upgrade Completed' status. The Parcelizer will make use of previously digitized government lots and special metes & bounds legal descriptions.
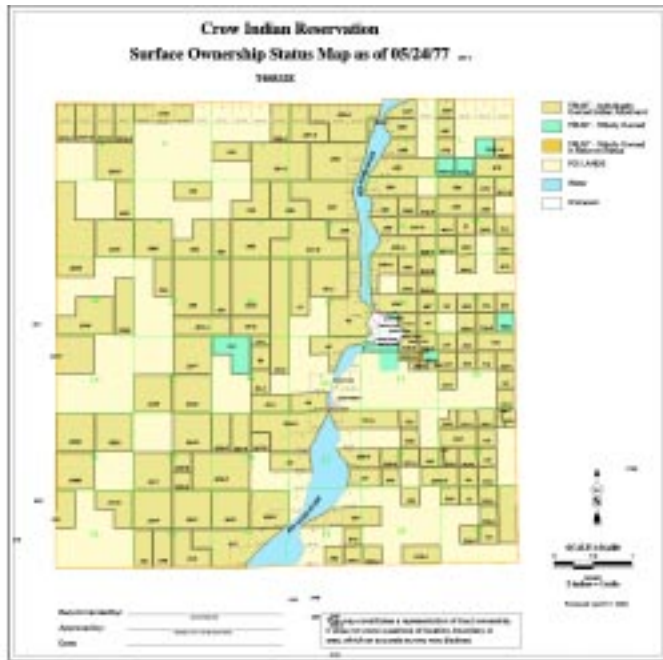
Underway

Database activity termed 'Pre-LRIS Database Prep Started' is also being initiated on other reservations. This category of LTM database production includes activities such as generation of an LRIS land status record errors and inconsistencies report (GODZILLA reports), and a GIS Public Land Survey System (PLSS) database editing and modification progress report. LTM requires a specific GIS database design built on a foundation of Public Lands Survey System GIS data which, in turn, is used as input for the creation of tracts via the GDSC Parcel Generator.

With a Little Help …

We continually strive to improve our Home Page by presenting fresh and interesting information for our clients.

We welcome any suggestions, ideas or comments from our user community! You can reach the GDSC Webmaster at gdsc@gdsc.bia.gov. ♦

Ladies in Waiting

'Pre-LRIS Database Prep Pending' status denotes reservations where no LTM database development activity is presently being performed. Future LTM database production efforts are prioritized by BIA LTRO's, and these identified Reservations are then entered into the GDSC LTM database production queue.

Plan it Again Sam

A documented 'LTM Database Production Plan', developed by GDSC Database and Data Entry staff, keeps the whole process smoothly on course from start to finish. ♦

The LRIS Connection

GDSC has successfully linked near real-time LRIS data with the Land Status ARC/INFO coverages generated by the Parcelizer process. This was done through a standard database Connect command within ARC to an Open Database Connectivity (ODBC) NT Database. Maps created using this type of information are currently being used in congressional hearings to support legislation advocated by the Bureau to resolve the fractionated heirship issue.

The potential products within the very near future will involve access to land-use, ownership, encumbrance data, lease expirations, individual land ownership maps and much much more. If anyone has suggestions as to how this information can be used to help a Realty process please contact GDSC. ♦

QUESTIONS AND ANSWERS

Q: How can I find out more about LTM?

A: Contact Mark Zundel at the GDSC (303) 231-5100 ext. 315.

Q: When will the next release of LTM be available?

A: Version 2.2 of LTM will be available the end of June and installed at Aberdeen and Billings Area Offices the first part of July 1998.

Q: Will ArcView play a role in the future of LTM?

A: Absolutely, when the demand justifies the time necessary to convert the LTM land status data to shape files and create a few scripts to facilitate their use.

Q: Where do I report problems with LTM?

A: Call the GDSC helpdesk at (303) 231-5120.

Q: How soon will LTM be available to me?

A: GDSC has committed to the completion of Aberdeen and Billings

Area reservations, including Minneapolis, within 13 months. A reservation priority schedule is pending from Central Office for the remaining Area Offices.

Q: Will LTM maps contain other cartographic features?

A: Yes! LTM is designed to accommodate other GIS base themes such as roads, railroads, hydrography, political boundaries, utilities, etc.